



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,424	02/10/2004	Leonard Forbes	400.270US01	9726

7590 01/21/2005
LEFFERT JAY & POLGLAZE, P.A.
Attn: Kenneth W. Bolvin
P.O. Box 581009
Minneapolis, MN 55402

EXAMINER

HOANG, HUAN

ART UNIT	PAPER NUMBER
----------	--------------

2818

DATE MAILED: 01/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/775,424

Applicant(s)

FORBES, LEONARD

Examiner

Huan Hoang

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20-23 is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>071904</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

1. Claims 20-23 are objected to because of the following informalities:

The phrase "a dynamic read only memory capacitor" (claim 20 and claim 22, lines 1-2) and "dynamic read only memory" (claim 20, lines 5-6, claim 22, lines 5-6 and claim 23, lines 2-3) should be "a dynamic random access memory" and "dynamic random access memory", respectively. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 14 and 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The verb "can" (claim 14, line 1) indicates possibility or probability that renders claim 14 vague and indefinite.

Claim 18 is incomplete and does not end with a period.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2818

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-6 and 8-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamauchi.

Yamauchi discloses a memory device having all the elements as recited in claims 1-6 and 8-15 as follows:

a dynamic random access memory capacitor (column 6, lines 53-54) that provides a dynamic mode of operation (column 8, lines 60-62);

a nitride read only memory (NROM) transistor (column 7, lines 13-14) that provides a repressed non-volatile random access memory mode of operation, the NROM transistor coupled between the capacitor and a data line (Fig. 5 (a)) and acting as a transfer gate for the capacitor;

wherein the NROM transistor is coupled to other NROM transistors by a word line coupled to a control gate of each NROM transistor (Fig. 5(a));

wherein the capacitor is coupled between ground and one of either a source or drain region of the NROM transistor (Fig. 5(a));

wherein the NROM transfers data from the capacitor to the data line when the word line is biased at a voltage that is greater than a threshold voltage of the transistor (column 11, lines 34-42); and

a plurality of sense amplifiers (Fig. 6(a) and Fig. 6(b)).

A charge stored in the transistor affecting a transfer rate of data from the capacitor to the data line is inherent since the charge will create an electric field that affects the flow of transferred charges from the capacitor to the data line.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7 and 16-19 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamauchi in view of Jiang et al. and Pickett.

Yamauchi discloses all the limitations of claim 7 (Fig. 5(b)) except for the voltage of 3.0 volts applied to the word line when the capacitor is read. Jiang et al. discloses the word line driven to 3 volts to read a value stored from the capacitor at a low operating voltage. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the voltage of 3 volts applied to the word line to read the value stored in the capacitor at a low operating voltage.

Yamauchi discloses all the limitations of claims 16-19 (Fig. 7 and column 11, lines 23-24 and column 12, lines 8-9) except for the processor coupled to the memory device. However, the processor coupled to the memory device is well-known in the art to provide control signals and this is shown by Pickett (Fig. 8). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use

a processor coupled to the memory device to provide control signals in a memory system.

Allowable Subject Matter

8. Claims 20-23 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art fails to disclose the steps of determining if the memory device is being accessed as a dynamic read only memory or as a non-volatile memory in response to a voltage level applied to the word line and if the memory device is accesses as a nonvolatile memory, determining a current difference through the transistor to determine a state of the transistor.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huan Hoang whose telephone number is (571) 272-1779. The examiner can normally be reached on Mon-Fri 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Huan Hoang
Primary Examiner
Art Unit 2818

HH
1/18/05.